ABSTRACT

DISTRIBUTIONAL HISTORY OF SOME NORTH AMERICAN FLIGHTLESS GRASSHOPPERS OF THE GENUS *MELANOPLUS*

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Melanoplus scudderi is a brachypterous acridid presently recognized as breaking into three ill-defined subspecies. A study of the concealed male genitalia has revealed a multitude of different populations. One assemblage of these populations occurs, with the exception of the southeastern coastal plain, over most of the eastern United States as far west as a line drawn from southeastern North Dakota to Central Louisiana. Within this area two gradients exist. A stepped east-west gradient running along a line through central Illinois and the east side of the Mississippi floodway joins the two gradients.

The following hypotheses are advanced to account for the present distribution of the forms of this complex. Prior to the Pleistocene glaciers a single generalized species occupied eastern United States. Ebb and flow of the ice divided this population into several parts. The glacial Mississippi and Ohio rivers served as barriers separating three populations. One of these was located on the Salem Plateau in the Ozarks, a second was isolated on Crowley's Ridge in northeastern Arkansas, and a third existed south of the glacial border to the east of the Mississippi floodway. A fourth population was isolated on an offshore island or islands in southern Alabama. The small populations in southern Alabama and on Crowley's Ridge differentiated the most and gave rise to the extremes found in each of the two gradients. The other two populations, both large, differentiated to a lesser degree; that occurring in the Ozarks shows the greatest change. Retreat of the glaciers, with subsequent occupation by the grasshoppers of new habitat as it became available, has resulted in the present distributions.